

Claims

- [1] A liquid crystal display device comprising:
a transflective liquid crystal panel;
a front light unit for supplying a light for displaying an image; and
a micro lens sheet for receiving the light incident from the front light unit, and
condensing the incident light on the transflective liquid crystal panel.
- [2] The liquid crystal display device according to claim 1, wherein the image is
displayed in both front and rear of the transflective liquid crystal by first and
second display modes, respectively, the first display mode allowing the image to
be displayed in front of the transflective liquid crystal panel using the light
reflected by a reflective region of the transflective liquid crystal panel, the
second display mode allowing the image to be displayed in rear of the
transflective liquid crystal panel using the light transmitted through a
transmissive region of the transflective liquid crystal.
- [3] The liquid crystal display device according to claim 1, wherein the front light
unit includes a light source on a side surface thereof.
- [4] The liquid crystal display device according to claim 3, wherein the light source is
selected from the group including a light emitting diode (LED), a cold cathode
fluorescent lamp (CCFL), and an external electrode fluorescent lamp (EEFL).
- [5] The liquid crystal display device according to claim 3, wherein the light source is
configured with a white light emitting diode (LED).
- [6] The liquid crystal display device according to claim 3, wherein the light source is
configured with a red LED, a green LED, and a blue LED.
- [7] The liquid crystal display device according to claim 1, wherein the transflective
liquid crystal panel comprises:
a first substrate including an array device having a thin film transistor, a
transmissive electrode formed on the array device for displaying the image by
transmitting the incident light, and a reflective plate for displaying the image by
reflecting the incident light;
a second substrate disposed on a position which is opposite to the first substrate,
wherein the second substrate includes a color filter formed on a location cor-
responding to a region where the transmissive electrode of the first substrate is
formed, and a black matrix formed between the color filters; and
a liquid crystal panel filled between the first substrate and the second substrate.
- [8] The liquid crystal display device according to claim 7, wherein the array device
comprises:
a plurality of gate lines formed in a first direction;

a plurality of data lines formed perpendicular to the gate lines;
a pixel region defined by the gate line and the data line; and
a thin film transistor formed at a region where the gate line and the data line are intersected with each other.

- [9] The liquid crystal display device according to claim 7, further comprising an insulating layer formed on the transmissive electrode.
- [10] The liquid crystal display device according to claim 1, wherein the micro lens sheet condenses the light incident from the light source on an opening of the transfective liquid crystal panel, and the opening is a region where the black matrix of the transfective liquid crystal panel is not formed.
- [11] The liquid crystal display device according to claim 1, wherein the micro lens sheet is formed in a shape of a lenticular lens or a cylindrical lens.
- [12] The liquid crystal display device according to claim 7, further comprising a common electrode under the color filter.
- [13] The liquid crystal display device according to claim 1, wherein the micro lens sheet is formed such that a lens shape is formed at a location corresponding to each unit pixel of the transfective liquid crystal panel.
- [14] The liquid crystal display device according to claim 13, wherein the lens shape is formed in a predetermined shape selected from the group including a spherical lens shape, an aspheric lens shape or a decentered lens shape.
- [15] A mobile communication terminal comprising:
a liquid crystal display device including a transfective liquid crystal panel, a front light unit for supplying a light for displaying an image, and a micro lens sheet for receiving the light incident from the front light unit, and condensing the incident light on the transfective liquid crystal panel;
a communication unit for communicating with an exterior; and
a control unit for controlling the communication unit and the liquid crystal display device.
- [16] The mobile communication terminal according to claim 15, wherein the image is displayed in both front and rear of the liquid crystal display device by first and second display modes, respectively, the first display mode allowing the image to be displayed in front of the liquid crystal display device using the light reflected by a reflective region of the transfective liquid crystal panel, the second display mode allowing the image to be displayed in rear of the liquid crystal display device using the light transmitted through a transmissive region of the transfective liquid crystal.
- [17] The mobile communication terminal according to claim 15, wherein the micro lens sheet condenses the light incident from the light source on an opening of the

transflective liquid crystal panel, and the opening is a region where the black matrix of the transflective liquid crystal panel is not formed.

[18] The mobile communication terminal according to claim 15, wherein the micro lens sheet is formed in a shape of a lenticular lens or a cylindrical lens.

[19] The mobile communication terminal according to claim 15, wherein the micro lens sheet is formed such that a lens shape is formed at a location corresponding to each unit pixel of the transflective liquid crystal panel.

[20] The mobile communication terminal according to claim 19, wherein the lens shape is formed in a predetermined shape selected from the group including a spherical lens shape, an aspheric lens shape or a decentered lens shape.